

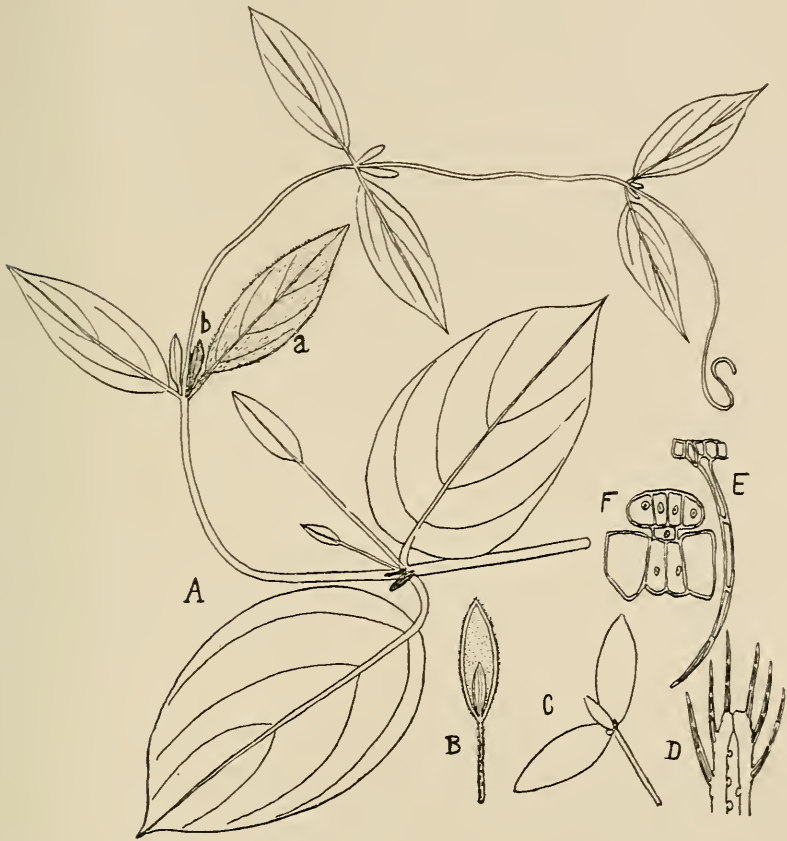
The Water-Storing Bracts of *Mendoncia coccinea* Vell. of Brazil

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Mendoncia is a genus of the family *Acanthaceae*, the twenty species of which are found in tropical America principally in Brazil, Guiana, Peru and an outlying species, *M. costaricana* Oerst. in Costa Rica. The plants of the genus are shrubs, or vines, usually well-provided with a hairy covering. The simple leaves are opposite and the floral bracts are likewise with their edges adherent. Each pair of opposite bracts usually encloses a single flower, while a few supernumerary buds remain of small size at the base of each flower. The flowers are trumpet-shaped with a calyx of reduced size and a corolla of five spreading petals inclosing four stamens. The fruit is drupe-like with fleshy pericarp and one to two seeds.

Mendoncia coccinea Vell., collected by the writer at Paineiras in the tropical forest on the mountain of the Corcovado near Rio de Janeiro, Brazil, at about 608 meters (2,000 feet) on July 18, 1927, is a woody vine. The velvety, twining stems are provided with opposite, ovate, simple leaves, velvety pubescent on the lower and upper surfaces, 40 mm. broad and 65 mm. long and with short, pubescent petioles, 6-8 mm. long. (Fig. A) The velvety peduncles of the flower arise from the axils of the foliage leaves and are about 30 mm. long surrounded by the opposite bracts, which are about 20 mm. long and 8 mm. wide. This pair of bracts is tightly closed together, like a bivalved clam, or oyster, and thus protect the small red flower bud. (Fig. B. C.) Each bract is papillate inside with numerous low multicellular capitate hairs that conform to the type of secretory hairs. (Fig. D.F.) In this case they secrete the water which accumulates in the space between the tightly adherent bracts, (Fig. B) whose margins and external surfaces are covered with straight, or slightly bent, several-celled hairs. (Fig. D. E.) These hairs form an external felt-like covering which prevents the loss of the water of internal secretion, which keeps the flower buds moist and prevents desiccation until the bracts separate and the flower buds are fully blown. The figures accompanying this short account of an interesting tropical liane display the general morphology of the plant, and the microscopic structure of the hairs which are of importance in pro-

viding the water in which the floral buds are bathed, and which conserve that water after it is once secreted. (Fig. D. E. F.) We have in this species an exemplification of adaptations of



Mendoncia coccinea Vell. A. Whole plant; a, a velvety leaf to show character of covering; b, adherent velvety bracts enclosing flower bud: B. Vertical section of bracts enclosing flower bud surrounded by water: C. Widely spread bracts and flower bud: D. Apices of two adherent bracts with hairs: E. Hair from outer surface of bract: F. Glandular hair which secretes water from inner surface of bract.

means to an end. One surface of the floral bracts is secretory, the other surface is protective. The foliar bracts by sticking closely together form a reservoir of free water in which the

flower buds are immersed until the flower opens ready for pollination. There are various ways in which plants store water. The arrangement of bracts in *Mendoncia coccinea* is a simple, but effective, means of water storage in a tropical liane, which reaches up into the forest trees where desiccation is more likely to occur than lower down, where the dense shade and nearness to the soil creates an atmosphere more nearly saturated with moisture. Shreve has referred to this fact in his study of the distribution of the bromeliads up and down tropical trees in the rain forest of the Blue Mountains of Jamaica. The more xerophytic bromeliads are found near the tops of the trees. The less xerophytic ones grow below.

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